(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau

OMPL

(43) International Publication Date 20 July 2006 (20.07.2006)

PCT

(10) International Publication Number WO 2006/075525 A1

- (21) International Application Number:

PCT/JP2005/024018

(22) International Filing Date:

21 December 2005 (21.12.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2004-375080 24 December 2004 (24.12.2004) J

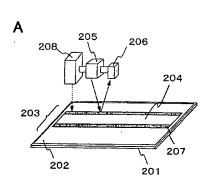
- (71) Applicant (for all designated States except US): SEMI-CONDUCTOR ENERGY LABORATORY CO., LTD. [JP/JP]; 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): TANAKA, Koichiro [JP/JP]; c/o SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP). YAMAMOTO, Yoshiaki.
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

[Continued on next page]

(54) Title: LIGHT EXPOSURE APPARATUS AND MANUFACTURING METHOD OF SEMICONDUCTOR DEVICE USING THE SAME



(57) Abstract: When annealing of a semiconductor film is conducted using a plurality of lasers, each of the distances between laser irradiation regions is different. When a lithography step is conducted in accordance with a marker which is formed over a substrate in advance after the step, light-exposure is not correctly conducted to a portion crystallized by laser. By using a laser irradiation region obtained on a laser irradiation step as a marker, light-exposure is conducted by making a light-exposure position of a stepper coincide with a large grain size region in the laser irradiation region. A large grain size region and a poorly crystalline region are detected by utilizing a thing that scattering intensity of light is different between the large grain size region and the poorly crystalline region, thereby determining a light-exposure position.



